

# [Supply chain management](https://assignbuster.com/supply-chain-management-essay-samples-10/)

SBX Construction Company Investment analysis – Horizontal Boring Machine: EATCF Stream:   Year Year 2 Year 3 Year 4 Year 5 NOI 20000 20000 20000 20000   
20000   
-Depr. Exp.   
-10000   
-10000   
-10000   
-10000   
-10000   
Net Income (BT)   
10000   
10000   
10000   
10000   
10000   
-Inc. Tax   
-4000   
-4000   
-4000   
-4000   
-4000   
  
  
  
  
  
  
= Net Income (AT)   
6000   
6000   
6000   
6000   
6000   
  
  
  
  
  
  
Adjusting Accrual to Reflect Cash Flow   
-Cap. Impr. Exp. s   
0   
0   
0   
0   
0   
+ Depr. Exp.   
10000   
10000   
10000   
10000   
10000   
+ Tax Claim   
2000   
2000   
2000   
2000   
2000   
EATCF   
$18000   
$18000   
$18000   
$18000   
$18000   
NPV @ 10% for the Equipment Investment:   
Capital Expenditure (Year 0)= $50000   
Cash Flow (Year 1 to 5) = Net Operating Income – Income Tax + Tax Claim   
= ($30000 - $10000) – ($4000) + ($2000)   
= $18000   
Discounted Cash Flow= $18000 \* (1/1. 1 + 1/1. 12… +1/1. 15)   
= $18000 \* (3. 790)   
= $68220   
NPV @ 10%= -$50000 + $68220   
= $18220   
Year   
EATCF   
Discount Factor   
PV   
0   
-50000   
1   
-50000   
1   
18000   
0. 909   
16362   
2   
18000   
0. 826   
14868   
3   
18000   
0. 751   
13518   
4   
18000   
0. 683   
12294   
5   
18000   
0. 621   
11178   
  
NPV   
18220   
IRR for the Investment:   
NPV @ 10% = $18220   
NPV @ 20% = -$50000 + ($18000 \* 2. 989)   
= -$50000 + $53802   
= $3802   
NPV @ 22%= -$50000 + ($18000 \* 2. 8636)   
= -$50000 + $ 51552   
= $1552   
NPV @ 24%= -$50000 + ($18000 \* 2. 7454)   
= -$50000 + $49392   
= -$608   
IRR= 23. 5%   
Discount Rate   
NPV   
10%   
18220   
20%   
3802   
21%   
2668   
22%   
1552   
23%   
454   
24%   
-608   
Memo to the Project Manager:   
Though the initial investment is high ($50000), the cash flow (EATCF) stream indicates that the payback period is approximately, 2 years and 10 months. Also, the cash flow stream is steady (after the payback period as well). Hence the payback period suggests that the investment is profitable. However, this value alone cannot be relied upon to make the final decision, as the cash flows are not discounted.   
The NPV calculations at 10% discount rate, indicates that the current value of the investment is $18220 (positive value). Hence NPV suggests that it is a profitable investment. However, this conclusion entirely depends on the method used to compute the discount rate and it has not been clearly specified whether inflation and other economical changes have been accommodated in this discount rate.   
The required IRR for the investment is 15%. But the actual IRR for the investment turns out to be 23. 5%, which is higher than the required rate. This indicates that the investment is preferable, when the required and actual IRR values are concerned. IRR indicates the discount or interest rate at which NPV equates to zero, i. e., a ‘ no gain – no loss’ situation. Higher this rate, higher is the margin of safety. As the actual IRR is higher than the required IRR for the investment, it is clear that the investment is profitable and SBX has a safety margin of about 5. 5 %, in case any of the estimations go wrong.   
All these discussions indicate that the investment on the horizontal boring machine is profitable and should be taken up by SBX Construction Company.   
Assumptions and controversies:   
Depreciation is straight line and the salvage value is zero – Straight line depreciation is not a valid measure and it is highly unlikely for the salvage value to be zero (at least equals to scrap value in real case)   
No increase in working capital requirements and no tax credits – Again, highly unlikely in real case scenarios   
Operating costs and revenues to be consistent - Unlikely